

CLAIMS

1. Process for preparing a mercaptan from a thioether and hydrogen sulphide, characterized in that it is carried out in the presence of hydrogen and a catalyst composition comprising a strong acid and at least one metal belonging to group VIII of the Periodic Table.

2. Process according to Claim 1, characterized in that the strong acid is selected from the group consisting of:

- (a) one or more heteropolyacids selected from:
 - (i) a compound of formula: $\text{H}_3\text{PW}_{12}\text{O}_{40} \cdot n\text{H}_2\text{O}$, $\text{H}_4\text{SiW}_{12}\text{O}_{40} \cdot n\text{H}_2\text{O}$ or $\text{H}_6\text{P}_2\text{W}_{18}\text{O}_{62} \cdot n\text{H}_2\text{O}$, in which n is an integer representing the number of molecules of water of crystallization, and is between 0 and 30, preferably between 6 and 20;
 - (ii) a potassium, rubidium, caesium or ammonium salt of at least one compound (i), or a mixture of such salts;
- (b) a sulphated zirconium oxide,
- (c) a tungstic zirconium oxide,
- (d) a zeolite, and
- (e) a cationic resin.

3. Process according to Claim 2, characterized in that the catalyst employed comprises as strong acid a heteropolyacid (ii), or one of the compounds (b), (c), (d) or (e).

4. Process according to Claim 3, characterized in that the catalyst composition comprises:

- from 90% to 99.9%, preferably from 98.5% to 99.5%, by weight of strong acid, and
- from 0.01% to 10%, preferably from 0.05% to 1.5%, by weight of metal from group VIII.

5. Process according to Claim 2, characterized in that the catalyst employed comprises as strong acid a heteropolyacid (i).

6. Process according to Claim 5, characterized in that the catalyst composition comprises:

- from 10% to 60%, preferably from 25 to 50%, by weight of strong acid,
- from 0.01% to 10%, preferably from 0.1% to 2%, by weight of metal from

group VIII, and

- from 30% to 80%, preferably from 48% to 75%, by weight of a support selected from silica SiO_2 , alumina Al_2O_3 , titanium dioxide TiO_2 , zirconium oxide ZrO_2 , and activated carbon.

7. Process according to either of Claims 5 and 6, characterized in that the strong acid employed in the catalyst is 12-phosphotungstic acid, preferably impregnated on silica.

8. Process according to one of Claims 1 to 7, characterized in that the metal or metals belonging to group VIII of the Periodic Table are selected from iron, cobalt, nickel, ruthenium, rhodium, palladium, osmium, iridium, and platinum.

9. Process according to Claim 8, characterized in that the metal or metals are selected from palladium, ruthenium, and platinum.

10. Process according to either of Claims 8 and 9, characterized in that the metal is palladium.

11. Process according to one of Claims 1 and 5 to 10, characterized in that the catalyst composition comprises approximately 40% by weight of 12-phosphotungstic acid, 1% of palladium and 59% of silica.

12. Process according to one of Claims 1 to 11, characterized in that the hydrogen is introduced in an amount corresponding to a molar $\text{H}_2\text{S}/\text{H}_2$ ratio of between 10 and 200, preferably between 50 and 100.

13. Process according to one of Claims 1 to 12, characterized in that the thioether used has the general formula:



in which R and R', which are identical or different, represent a linear or branched alkyl radical of 1 to 20 carbon atoms, preferably 1 to 12 carbon atoms, or else a cycloalkyl radical of 3 to 7 carbon atoms.

14. Process according to one of Claims 1 to 13, characterized in that the hydrogen sulphide is introduced in an amount corresponding to a molar $\text{H}_2\text{S}/\text{thioether}$ ratio of between 1 and 40, preferably between 2 and 30, more preferably between 2 and 10.